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STRUCTURE FILE UPDATES: 12 NOV 2006 HIGHEST RN 913055-81-9
 DICTIONARY FILE UPDATES: 12 NOV 2006 HIGHEST RN 913055-81-9

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TSCA INFORMATION NOW CURRENT THROUGH June 30, 2006

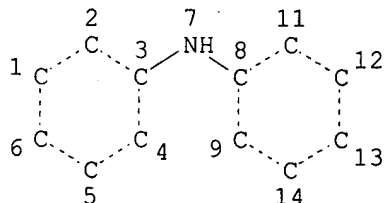
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<http://www.cas.org/ONLINE/UG/regprops.html>

=> d sta que l36

L30 STR



NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RSPEC 4 8
 NUMBER OF NODES IS 13

STEREO ATTRIBUTES: NONE
 L31 SCR 1993
 L33 37070 SEA FILE=REGISTRY SSS FUL L30 AND L31
 L34 STR

Cb—NH—Cb—NH2
 1 2 3 4

NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 GGCAT IS MCY UNS AT 1
 GGCAT IS MCY UNS AT 3
 DEFAULT ECLEVEL IS LIMITED
 ECOUNT IS E6 C AT 1
 ECOUNT IS E6 C AT 3

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE
L36 3209 SEA FILE=REGISTRY SUB=L33 SSS FUL L34

100.0% PROCESSED 37070 ITERATIONS 3209 ANSWERS
SEARCH TIME: 00.00.01

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FILE 'HCAPLUS' ENTERED AT 13:45:20 ON 14 NOV 2006
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FILE COVERS 1907 - 14 Nov 2006 VOL 145 ISS 21
FILE LAST UPDATED: 12 Nov 2006 (20061112/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

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L103 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:1000602 HCAPLUS
DN 143:289153
ED Entered STN: 15 Sep 2005
TI Reaction products of polyalkenylsuccinic anhydrides with aliphatic and aromatic amines as dispersants for lubricants and fuels
IN Loper, John T.; Griffin, Paul P.; Hutchison, David A.; Dittmeier, Robert T.
PA Afton Chemical Corporation, USA
SO Eur. Pat. Appl., 18 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM C10M0133-26
ICS C10L0001-22; C08F0008-46; C08F0008-32; C08F0255-00; C08F0255-10
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1574559	A1	20050914	EP 2005-251459	20050310 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, BA, HR, IS, YU				
	US 2005202980	A1	20050915	US 2004-797877	20040310 <--
	CA 2497072	AA	20050910	CA 2005-2497072	20050216 <--
	AU 2005200694	A1	20050929	AU 2005-200694	20050216 <--
	JP 2005256001	A2	20050922	JP 2005-65730	20050309 <--
PRAI	US 2004-797877	A	20040310	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
EP 1574559	ICM	C10M0133-26
	ICS	C10L0001-22; C08F0008-46; C08F0008-32; C08F0255-00; C08F0255-10
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	ECLA	C10M133/26
US 2005202980	IPCI	C10M0133-46 [ICM,7]; C10M0133-56 [ICS,7]; C10M0133-00 [ICS,7,C*]; C10L0001-22 [ICS,7]; C10L0001-10 [ICS,7,C*]
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	NCL	508/232.000; 044/331.000; 044/347.000; 044/348.000; 508/291.000
	ECLA	C10M133/26
CA 2497072	IPCI	C10M0141-06 [ICM,7]; C10M0141-02 [ICS,7]; C10M0141-00 [ICS,7,C*]; C10L0001-14 [ICS,7]; C10L0001-18 [ICS,7]; C10L0001-22 [ICS,7]; C10L0001-10 [ICS,7,C*]
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AU 2005200694	IPCI	C10M0133-04 [ICM,7]; C10M0133-12 [ICS,7]; C10M0133-00

[ICS,7,C*]
 IPCR F02M0025-00 [I,C*]; F02M0025-00 [I,A]; C08F0008-00 [I,C*]; C08F0008-32 [I,A]; C08F0008-46 [I,A]; C08F0255-00 [I,C*]; C08F0255-00 [I,A]; C08F0255-10 [I,A]; C10L0001-10 [I,C*]; C10L0001-18 [I,A]; C10L0001-188 [I,A]; C10L0001-224 [I,A]; C10L0001-2383 [I,A]; C10M0129-00 [I,C*]; C10M0129-42 [I,A]; C10M0129-92 [I,A]; C10M0133-00 [I,C*]; C10M0133-06 [I,A]; C10M0133-12 [I,A]; C10M0133-16 [I,A]; C10M0133-26 [I,A]; C10M0133-56 [I,A]; C10M0159-00 [I,C*]; C10M0159-12 [I,A]; C10M0169-00 [I,C*]; C10M0169-04 [I,A]; C10N0030-04 [N,A]; C10N0030-10 [N,A]; C10N0040-04 [N,A]; C10N0040-25 [N,A]
 JP 2005256001 IPCI C10M0133-16 [ICM,7]; C10L0001-18 [ICS,7]; C10L0001-22 [ICS,7]; C10L0001-10 [ICS,7,C*]; C10M0129-42 [ICS,7]; C10M0129-92 [ICS,7]; C10M0129-00 [ICS,7,C*]; C10M0133-06 [ICS,7]; C10M0133-12 [ICS,7]; C10M0133-56 [ICS,7]; C10M0133-00 [ICS,7,C*]; C10M0159-12 [ICS,7]; C10M0159-00 [ICS,7,C*]; C10M0169-04 [ICS,7]; C10M0169-00 [ICS,7,C*]; F02M0025-00 [ICS,7]; C10N0030-04 [ICS,7]; C10N0030-10 [ICS,7]; C10N0040-04 [ICS,7]; C10N0040-25 [ICS,7]
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 FTERM 4H013/CE02; 4H104/BB18C; 4H104/BC06C; 4H104/BE11C; 4H104/BF03C; 4H104/LA02; 4H104/LA05; 4H104/PA02; 4H104/PA03; 4H104/PA05; 4H104/PA41
 OS MARPAT 143:289153
 AB Multifunctional dispersants for fuels and lubricants consist of the amination reaction products of a hydrocarbyl-substituted succinic acylating agent and a mixture of ≥ 1 aliphatic (nonpolymeric) polyamine and ≥ 1 aromatic (nonpolymeric) polyamine, in which the weight ratio of aliphatic to aromatic amine is 0.1-10:0.1-10 and the amination product contains ≥ 0.1 mol equivalent of the aromatic amine to 1 molar equivalent of the acylating agent. The aliphatic amine is a linear aliphatic (nonpolymeric) polyamine; the hydrocarbyl-substituted acylating agent consists of succinic anhydride substituted with a hydrocarbyl group with number-average mol. weight 200-10,000 (especially polyisobutenyl). The aromatic polyamine is N-phenylphenylenediamine, N-naphthylphenylenediamine, or a polyamine with general formula $R_1-Ar-NH-C_6H_3(R_2)(R_3)$, in which Ar is the aromatic group, $R_1 = H, -NH_2, -NH-aryl-NH_2, -NH-arylalkyl-NH_2, -NH-alkyl-NH_2, -NH-aryl, -NH-aryl-alkyl, -NH-alkyl$, or branched C4-24-hydrocarbyl; $R_2 = -NH_2, -(NH(CH_2)_n)_m-NH_2, -CH_2-(CH_2)_n-NH_2$, or $-aryl-NH_2$, in which n and m = 1-10; and $R_3 = H$ and C4-24-alkyl, -alkenyl, -alkoxy, -arylalkyl, or -alkaryl, in which only one or R2 and R3 has a terminal $-NH_2$ group. The composition is suitable for use as an additive in crankcase lubricating oils, drive-train lubricants, gear lubricants, and lubricating greases.
 ST lubricant dispersant amination hydrocarbylsuccinic anhydride polyamine; aliph arom polyamine polyisobutenylsuccinic anhydride lubricant dispersant; lubricating oil grease polyisobutenyl succinate polyamine dispersant; crankcase oil polyisobutenyl succinate polyamine dispersant; gear transmission lubricant polyisobutenyl succinate polyamine dispersant
 IT Diesel fuel additives
 Fuel additives
 Fuel oil additives
 Gasoline additives
 Lubricating grease additives

Lubricating oil additives
(dispersants; reaction products of polyalkenylsuccinic anhydrides with aliphatic and aromatic amines as dispersants for lubricants and fuels)

IT Dispersing agents
(fuel oil additives; reaction products of polyalkenylsuccinic anhydrides with aliphatic and aromatic amines as dispersants for lubricants and fuels)

IT Lubricating oils
(gear oils; reaction products of polyalkenylsuccinic anhydrides with aliphatic and aromatic amines as dispersants for lubricants and fuels)

IT Lubricating oil additives
(multifunctional; reaction products of polyalkenylsuccinic anhydrides with aliphatic and aromatic amines as dispersants for lubricants and fuels)

IT Amines, uses
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(polyamines, aliphatic, nonpolymeric, reaction products with polyalkenylsuccinic anhydride and aromatic amines; dispersants; reaction products of polyalkenylsuccinic anhydrides with aliphatic and aromatic amines as dispersants for lubricants and fuels)

IT Amines, uses
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(polyamines, nonpolymeric, aromatic, reaction products with aliphatic polyamines and polyalkenylsuccinic anhydride; dispersants; reaction products of polyalkenylsuccinic anhydrides with aliphatic and aromatic amines as dispersants for lubricants and fuels)

IT Amines, uses
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(polyamines, nonpolymeric, polyethylene-, reaction products with polyalkenylsuccinic anhydride and aromatic amines; dispersants; reaction products of polyalkenylsuccinic anhydrides with aliphatic and aromatic amines as dispersants for lubricants and fuels)

IT Hydraulic fluids
(transmission, automatic; reaction products of polyalkenylsuccinic anhydrides with aliphatic and aromatic amines as dispersants for lubricants and fuels)

IT **101-54-2D, N-Phenyl-1,4-phenylenediamine, reaction**
products with aliphatic polyamines and polyalkenylsuccinic anhydride
108-30-5D, Succinic anhydride, polyisobutenyl derivs.,
reaction products with aliphatic polyamines and aromatic polyamines
10368-27-1D, reaction products with aliphatic polyamines and polyalkenylsuccinic anhydride 84582-75-2D, E 100 (amine), reaction products with aliphatic polyamines and polyalkenylsuccinic anhydride
RL: MOA (Modifier or additive use); RCT (Reactant);
RACT (Reactant or reagent); USES (Uses)
(dispersants; reaction products of polyalkenylsuccinic anhydrides with aliphatic and aromatic amines as dispersants for lubricants and fuels)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Ethyl Corporation; EP 0909805 A 1999 HCAPLUS

(2) Infineum International Limited; EP 1318188 A 2003 HCAPLUS

(3) Liu; US 6117825 A 2000 HCAPLUS

IT **101-54-2D, N-Phenyl-1,4-phenylenediamine, reaction**
products with aliphatic polyamines and polyalkenylsuccinic anhydride

108-30-5D, Succinic anhydride, polyisobutenyl derivs.,
reaction products with aliphatic polyamines and aromatic polyamines

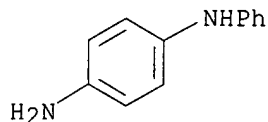
RL: MOA (Modifier or additive use); RCT (Reactant);

RACT (Reactant or reagent); USES (Uses)

(dispersants; reaction products of polyalkenylsuccinic
anhydrides with aliphatic and aromatic amines as dispersants for lubricants
and fuels)

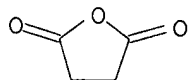
RN 101-54-2 HCAPLUS

CN 1,4-Benzenediamine, N-phenyl- (9CI) (CA INDEX NAME)



RN 108-30-5 HCAPLUS

CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Ethyl Corporation	1999			EP 0909805 A	HCAPLUS
Infineum International	2003			EP 1318188 A	HCAPLUS
Liu	2000			US 6117825 A	HCAPLUS

L103 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2000:636202 HCAPLUS

DN 133:225424

ED Entered STN: 13 Sep 2000

TI Polyisobutylene succinimide and ethylene-propylene succinimide synergistic
additives for lubricating oil compositions

IN Liu, Christopher Soundang; Migdal, Cyril Andrew; Crawford, Norris Roland;
Yamamoto, Roy Isamu

PA Ethyl Corporation, USA

SO U.S., 19 pp.

CODEN: USXXAM

DT Patent

LA English

IC ICM C10M0149-06

ICS C10M0133-16

INCL 508291000

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 6117825	A	20000912	US 1992-879401	19920507
PRAI US 1992-879401		19920507		

CLASS

PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

US 6117825 ICM C10M0149-06
ICS C10M0133-16
INCL 508291000
IPCI C10M0149-06 [ICM,7]; C10M0149-00 [ICM,7,C*];
C10M0133-16 [ICS,7]; C10M0133-00 [ICS,7,C*]
IPCR C10M0133-00 [I,C*]; C10M0133-52 [I,A]; C10M0133-56
[I,A]
NCL 508/291.000; 508/290.000; 508/293.000
ECLA C10M133/52; C10M133/56

AB A lubricating oil composition comprising: (a) a major amount of an oil of lubricating viscosity; and (b) a minor dispersant amount of a synergistic combination of an antioxidant-dispersant additive and a dispersant additive, said combination comprising: (i) a polyisobutylene succinimide; and (ii) an ethylene-propylene succinimide.

ST lubricating oil polyisobutylene succinimide dispersant additive

IT Alcohols, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(C14-16, ethoxylated; polyisobutylene succinimide and ethylene-propylene succinimide synergistic additives for lubricating oil compns.)

IT Lubricating oil additives
(dispersants; polyisobutylene succinimide and ethylene-propylene succinimide synergistic additives for lubricating oil compns.)

IT Lubricating oils
(polyisobutylene succinimide and ethylene-propylene succinimide synergistic additives for lubricating oil compns.)

IT **123-56-8D**, Succinimide, **reaction** products with ethylene-propylene copolymer 9010-79-1D, Ethylene-Propylene Copolymer, grafted with maleic anhydride
RL: **MOA (Modifier or additive use); USES (Uses)**
(polyisobutylene succinimide and ethylene-propylene succinimide synergistic additives for lubricating oil compns.)

IT 50-00-0, Formaldehyde, reactions 79-14-1, Glycolic acid, reactions 80-43-3, Dicumyl peroxide **101-54-2**, N-Phenyl-p-phenylenediamine **108-30-5D**, Succinic acid anhydride, **isobutenyl** derivs **108-31-6**, Maleic anhydride, **reactions** 109-55-7 **4067-16-7**, Pentaethylenhexamine **5840-03-9**, 1,3-Benzenediamine, N-phenyl- 9016-45-9, Surfonic N-40 25154-52-3, Nonylphenol
RL: **RCT (Reactant); RACT (Reactant or reagent)**
(polyisobutylene succinimide and ethylene-propylene succinimide synergistic additives for lubricating oil compns.)

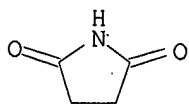
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE
(1) Karol; US 4482464 1984 HCAPLUS
(2) Migdal; US 5075383 1991 HCAPLUS
(3) Nalesnik; US 4636322 1987 HCAPLUS
(4) Nalesnik; US 4699724 1987 HCAPLUS

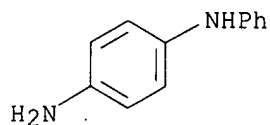
IT **123-56-8D**, Succinimide, **reaction** products with ethylene-propylene copolymer
RL: **MOA (Modifier or additive use); USES (Uses)**
(polyisobutylene succinimide and ethylene-propylene succinimide synergistic additives for lubricating oil compns.)

RN 123-56-8 HCAPLUS

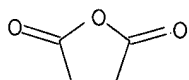
CN 2,5-Pyrrolidinedione (9CI) (CA INDEX NAME)



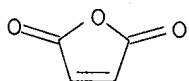
IT 101-54-2, N-Phenyl-p-phenylenediamine 108-30-5D,
 Succinic acid anhydride, isobutenyl derivs 108-31-6,
 Maleic anhydride, reactions 4067-16-7,
 Pentaethylenhexamine 5840-03-9, 1,3-Benzenediamine, N-phenyl-
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (polyisobutylene succinimide and ethylene-propylene succinimide
 synergistic additives for lubricating oil compns.)
 RN 101-54-2 HCAPLUS
 CN 1,4-Benzenediamine, N-phenyl- (9CI) (CA INDEX NAME)



RN 108-30-5 HCAPLUS
 CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)

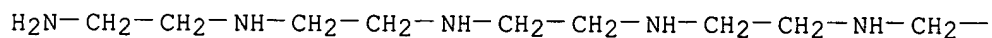


RN 108-31-6 HCAPLUS
 CN 2,5-Furandione (9CI) (CA INDEX NAME)

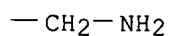


RN 4067-16-7 HCAPLUS
 CN 3,6,9,12-Tetraazatetradecane-1,14-diamine (9CI) (CA INDEX NAME)

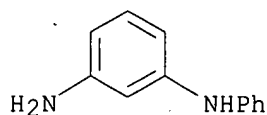
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PAGE 1-B



RN 5840-03-9 HCAPLUS
 CN 1,3-Benzenediamine, N-phenyl- (9CI) (CA INDEX NAME)



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Karol	1984			US 4482464	HCAPLUS
Migdal	1991			US 5075383	HCAPLUS
Nalesnik	1987			US 4636322	HCAPLUS
Nalesnik	1987			US 4699724	HCAPLUS

L103 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1997:260100 HCAPLUS

DN 126:307208

ED Entered STN: 23 Apr 1997

TI Polyisobutylene succinimide, ethylene-propylene succinimide and an alkylated phenothiazine additive for lubricating oil compositions

IN Esche, Carl K., Jr.; Migdal, Cyril A.; Sanderson, John R.; Ippolito, Anthony L.

PA Ethyl Additives Corporation, USA

SO U.S., 8 pp., Cont. of U.S. Ser. No. 384,804, abandoned.

CODEN: USXXAM

DT Patent

LA English

IC ICM C10M0157-04

INCL 508251000

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

FAN.CNT 1

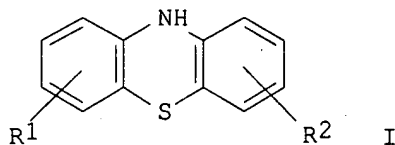
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PI	US 5614124	A	19970325	US 1995-481212	19950607
PRAI	US 1993-159611	B1	19931201		
	US 1995-384804	B1	19950206		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 5614124	ICM	C10M0157-04
	INCL	508251000
	IPCI	C10M0157-04 [ICM,6]; C10M0157-00 [ICM,6,C*]
	IPCR	C10M0141-00 [I,C*]; C10M0141-08 [I,A]; C10M0163-00 [I,C*]; C10M0163-00 [I,A]
	NCL	508/251.000
	ECLA	C10M141/08; C10M163/00

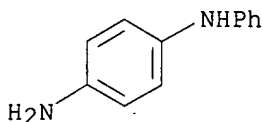
OS MARPAT 126:307208

GI

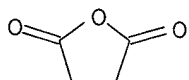


- AB A lubricating oil composition comprises (a) a major amount of an oil of lubricating viscosity; and (b) a minor amount of a synergistic combination of an antioxidant-dispersant additive and a dispersant additive, the combination comprising: (i) a polyisobutylene succinimide; (ii) an ethylene-propylene succinimide; and (iii) an alkylated phenothiazine represented by the formula I, where R1 is a linear or branched C4-24 alkyl, heteroalkyl or alkylaryl group; and R2 is H or a linear or branched C4-24 alkyl group.
- ST polyisobutylene succinimide dispersant lubricating oil additive; alkylated phenothiazine antioxidant dispersant lubricating oil; ethylene propylene succinimide antioxidant dispersant lubricating
- IT Lubricating oil additives
(antioxidants; alkylated phenothiazines)
- IT Lubricating oils
(crankcase; polyisobutylene succinimide, ethylene-propylene succinimide and alkylated phenothiazine additives for lubricating oil compns.)
- IT **101-54-2DP**, N-Phenyl-p-phenylenediamine, **reaction** products with ethylene-maleic anhydride-propylene graft copolymer 109-55-7DP, reaction products with ethylene-maleic anhydride-propylene graft copolymer and N-Phenyl-p-phenylenediamine 106177-14-4DP, Ethylene-maleic anhydride-propylene graft copolymer, reaction products with N-phenyl-p-phenylenediamine and/or N,N-dimethylaminopropylamine
RL: IMF (Industrial manufacture); **MOA (Modifier or additive use)**
; PREP (Preparation); **USES (Uses)**
(antioxidants-dispersants; polyisobutylene succinimide, ethylene-propylene succinimide and alkylated phenothiazine additives for lubricating oil compns.)
- IT 50-00-0DP, Formaldehyde, reaction products with polyisobutenylsuccinic anhydride, pentaethylenhexamine, 4-hydroxydiphenylamine and glycolic acid, uses 79-14-1DP, Glycolic acid, reaction products with polyisobutenylsuccinic anhydride, pentaethylenhexamine, 4-hydroxydiphenylamine and formaldehyde **108-30-5DP**, Succinic anhydride, **polyisobutenyl** derivs., **reaction** products with pentaethylenhexamine, 4-hydroxydiphenylamine, formaldehyde and glycolic acid 122-37-2DP, 4-Hydroxydiphenylamine, reaction products with polyisobutenylsuccinic anhydride, pentaethylenhexamine, formaldehyde and glycolic acid **4067-16-7DP**, Pentaethylenhexamine, **reaction** products with polyisobutenylsuccinic anhydride, 4-hydroxydiphenylamine, formaldehyde and glycolic acid
RL: IMF (Industrial manufacture); **MOA (Modifier or additive use)**
; PREP (Preparation); **USES (Uses)**
(dispersants; polyisobutylene succinimide, ethylene-propylene succinimide and alkylated phenothiazine additives for lubricating oil compns.)
- IT 92-84-2DP, Phenothiazine, tetradecyl or decyl derivs.
RL: IMF (Industrial manufacture); **MOA (Modifier or additive use)**; PREP (Preparation); **USES (Uses)**
(polyisobutylene succinimide, ethylene-propylene succinimide and alkylated phenothiazine additives for lubricating oil compns.)
- IT 122-39-4DP, Diphenylamine, tetradecyl or decyl derivs.
RL: IMF (Industrial manufacture); **MOA (Modifier or additive use)**; RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent); **USES (Uses)**
(polyisobutylene succinimide, ethylene-propylene succinimide and alkylated phenothiazine additives for lubricating oil compns.)
- IT 122-39-4, Diphenylamine, reactions 872-05-9, 1-Decene 1120-36-1, 1-Tetradecene
RL: RCT (Reactant); RACT (Reactant or reagent)
(polyisobutylene succinimide, ethylene-propylene succinimide and alkylated phenothiazine additives for lubricating oil compns.)

IT 101-54-2DP, N-Phenyl-p-phenylenediamine, **reaction**
 products with ethylene-maleic anhydride-propylene graft copolymer
 RL: IMF (Industrial manufacture); **MOA (Modifier or additive use)**
 ; PREP (Preparation); **USES (Uses)**
 (antioxidants-dispersants; polyisobutylene succinimide,
 ethylene-propylene succinimide and alkylated phenothiazine additives
 for lubricating oil compns.)
 RN 101-54-2 HCAPLUS
 CN 1,4-Benzenediamine, N-phenyl- (9CI) (CA INDEX NAME)

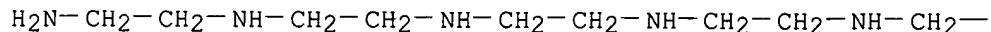


IT 108-30-5DP, Succinic anhydride, **polyisobutenyl** derivs.,
reaction products with pentaethylenehexamine, 4-
 hydroxydiphenylamine, formaldehyde and glycolic acid 4067-16-7DP
 , Pentaethylenehexamine, **reaction** products with
 polyisobutenylsuccinic anhydride, 4-hydroxydiphenylamine, formaldehyde and
 glycolic acid
 RL: IMF (Industrial manufacture); **MOA (Modifier or additive use)**
 ; PREP (Preparation); **USES (Uses)**
 (dispersants; polyisobutylene succinimide, ethylene-propylene
 succinimide and alkylated phenothiazine additives for lubricating oil
 compns.)
 RN 108-30-5 HCAPLUS
 CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)

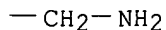


RN 4067-16-7 HCAPLUS
 CN 3,6,9,12-Tetraazatetradecane-1,14-diamine (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



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(FILE 'HOME' ENTERED AT 12:40:21 ON 14 NOV 2006)
 SET COST OFF

FILE 'HCAPLUS' ENTERED AT 12:40:38 ON 14 NOV 2006

L1 1 S US20050202980/PN OR US2004-797877#/AP, PRN
E AFTON/PA, CS
L2 44 S E3-E25
E ETHYLPA, CS
E ETHYL/PA, CS
L3 4025 S E3, E4
E ETHYL PET/PA, CS
L4 196 S E5-E47
E LOPER/AU
E LOPER J/AU
L5 25 S E3, E7, E8
E GRIFFIN/AU
E GRIFFIN P/AU
L6 40 S E3, E11
L7 27 S E38, E42, E43
E HUTCHISON/AU
L8 1 S E3
E HUTCHISON D/AU
L9 13 S E3, E4
L10 10 S E15-E17
E DITTMEIER/AU
L11 1 S E5
E DITMEIER/AU
SEL RN L1

FILE 'REGISTRY' ENTERED AT 12:43:49 ON 14 NOV 2006

L12 4 S E1-E4
L13 1 S L12 AND OC4/ES
E POLYISOBUTYLENE/CN
L14 1 S E3
L15 45289 S OC4/ES AND 1/NR AND 3/ELC.SUB AND (C AND H AND O)/ELS
L16 26519 S (108-30-5 OR 108-31-6)/CRN
L17 420 S L16 AND 115-11-7/CRN
L18 88 S L17 AND 46.150.18/RID
L19 42 S L18 AND N/ELS
L20 270 S C8H10O3/MF AND OC4/ES
L21 26 S L20 AND 2 5 FURANDIONE
L22 18 S L21 AND DIHYDRO
L23 2 S 45896-82-0 OR 18908-20-8
L24 37 S (C4H5NO2 OR C4H3NO2)/MF AND NC4/ES
L25 9 S L24 AND 2 5 NOT D/ELS
L26 3 S L25 NOT (RADICAL OR 14C2 OR 15N)
L27 2 S L26 NOT DIOL
L28 4 S 108-30-5 OR 108-31-6 OR L27
L29 1 S C12H12N2 AND L12
L30 STR
L31 SCR 1993
L32 50 S L30 AND L31
L33 37070 S L30 AND L31 FUL
L34 STR
L35 50 S L34 SAM SUB=L33
L36 3209 S L34 FUL SUB=L33
SAV L36 GOLOB797/A
L37 67 S L36 AND (OC4 OR NC4)/ES
L38 17 S L37 AND PMS/CI
L39 409 S L36 AND PMS/CI NOT L38
L40 318 S L39 NOT (SI OR P OR S)/ELS
L41 294 S L40 NOT F/ELS
L42 265 S L41 NOT (OC2 OR C4-OC4-OC4)/ES

L43 190 S L42 NOT C8H4CL2O2
 L44 154 S L43 NOT (B/ELS OR C6-C6/ES OR OC4-C6/ES)
 L45 144 S L44 NOT OC4-OC4-C6/ES
 L46 118 S L45 NOT (C8H6O4 OR C6H6O2)
 L47 139 S L45 NOT C6H7N
 L48 129 S L47 NOT C6H6O2
 L49 113 S L48 NOT C8H6O4
 L50 109 S L49 NOT (46.150.1/RID OR C5-C5-C6-C6-C6-C6/ES)
 L51 2733 S L36 NOT L37-L50
 L52 2246 S L51 AND 1/NC
 L53 20 S L52 AND IDS/CI
 L54 2226 S L52 NOT L53
 L55 7 S L54 AND C12H12N2
 L56 3 S L55 NOT (D/ELS OR RADICAL)
 L57 1 S 115-11-7

FILE 'HCAPLUS' ENTERED AT 13:17:16 ON 14 NOV 2006

FILE 'REGISTRY' ENTERED AT 13:18:39 ON 14 NOV 2006

L58 1 S L12 AND C6-C6/ES

FILE 'HCAPLUS' ENTERED AT 13:18:58 ON 14 NOV 2006

L59 49145 S L28
 L60 16885 S L28 (L) RACT+NT/RL
 L61 4791 S L28 (L) MOA/RL
 L62 1116 S L28/D (L) (ISOBUTENYL OR POLYISOBUTENYL OR POLY ISOBUTENYL)
 L63 455 S L62 AND L60,L61
 L64 375 S L14,L57 AND L60,L61
 L65 716 S L63,L64
 L66 3 S L29,L56 AND L65
 L67 3 S L54 AND L65
 L68 3 S L66,L67

FILE 'REGISTRY' ENTERED AT 13:23:03 ON 14 NOV 2006

SEL RN L28
 L69 27081 S E1-E4/CRN
 L70 422 S L69 AND 115-11-7/CRN
 L71 163 S L70 AND N/ELS
 L72 152 S L71 NOT C10H7NO2
 L73 134 S L72 NOT (OC2/ES OR C2H4O)
 L74 2 S L73 AND 2/NC
 L75 51 S L73 AND 3/NC
 L76 9 S L75 AND (C4H15N5 OR C2H8N2 OR C13H29N OR C4H13N3 OR C8H23N5 O
 L77 3 S L75 AND NC2/ES
 L78 1 S L75 AND NC6/ES
 L79 9 S L75 AND NC4/ES AND OC4/ES
 L80 22 S L76-L79
 SEL RN 1-3 9 13 16-21
 L81 11 S E5-E15
 L82 13 S L74,L81
 L83 57 S L73 AND 4/NC
 L84 16 S L83 AND NA/ELS
 L85 1 S L83 AND H3N AND NC4/ES AND OC4/ES
 SEL RN L84 2 9 12 16
 L86 4 S E16-E19
 L87 18 S L82,L85,L86

FILE 'HCAPLUS' ENTERED AT 13:40:29 ON 14 NOV 2006

L88 187 S L87
 L89 0 S L88 AND L56